

WARM UP:

Researchers want to find ways to reduce chronic back pain. They believe that magnets and heat can help. They want to look at magnets ***combined*** with 3 levels of heat (high, medium, low). There are 240 subjects with chronic back pain available for the experiment.

(a) Identify the following:

- | | |
|------------------------|------------------------|
| - Explanatory variable | - Response Variable |
| - Treatments (6 or 8) | - Subjects/Individuals |

(b) Is a placebo/control group necessary? Justify.

(c) Design an appropriate experiment.

(d) Name some lurking/confounding variables.

2) A researcher wants to see whether a new medication will help lower blood pressure. He has 24 people with high blood pressure available for the clinical trials.

(a) Identify the following:

- | | |
|------------------------|------------------------|
| - Explanatory variable | - Response Variable |
| - Treatments (2 or 3) | - Subjects/Individuals |

(b) Is a placebo/control group necessary? Justify.

(c) Design an appropriate experiment.

(d) Write instructions for how the researcher should carry out the randomization that is in your diagram in letter (c).

(e) Using the section of the table of random digits below, carry out the randomization you described above (assign each person to a treatment group).

(f) Name some lurking/confounding variables.

(1)

(a) Explanatory Variable =

heat & magnets

Response Variable =

back pain

Treatments =

magnets & low

placebo & low

magnets & med

placebo & med

magnets & high

placebo & high

(magnets & none

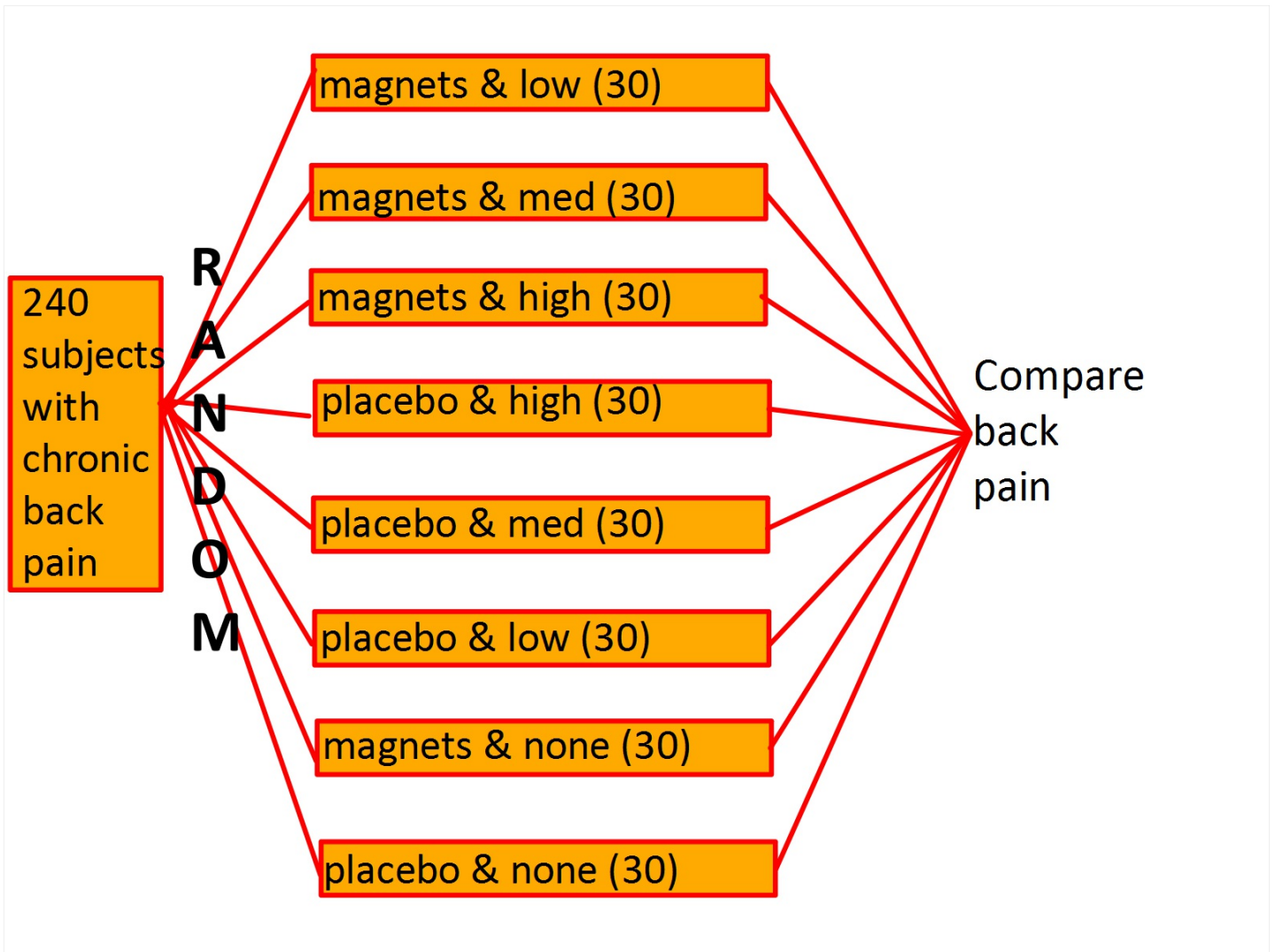
placebo & none)

Subjects =

240 people with chronic back pain

(b) yes, placebo for magnets. Control for heat.

(d) types of injuries/back pain

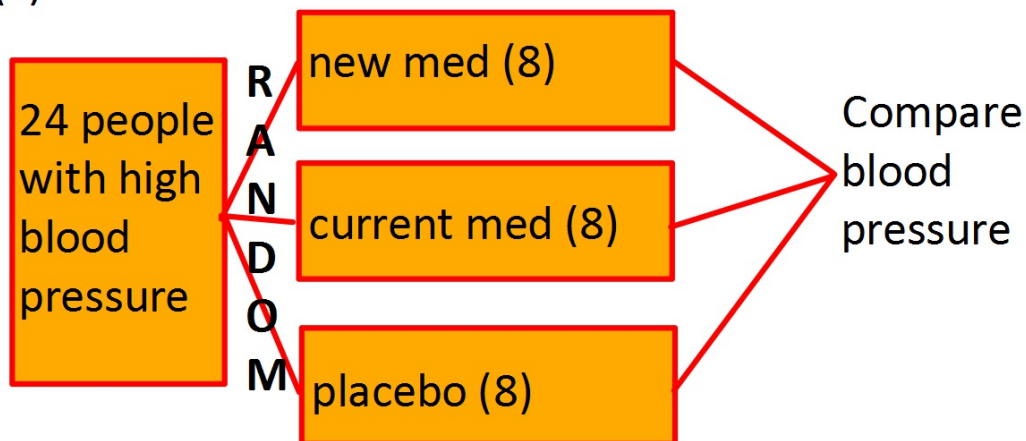


(2)

(a) Explanatory Variable = medication
Response Variable = blood pressure
Treatments = new med, current med, placebo
Subjects = 24 people with high blood pressure

(b) yes, placebo

(c)



- (d) * assign each person a number from 01 -- 24
* read across the TRD, every 2 digits = 1 person
* ignore #25 -- 99, 00, repeats
* First 8 go into Treatment #1 (new med)
Next 8 go into Treatment #2 (current med)
Last 8 go into Treatment #3 (placebo)

31685 97150 45740 91807 65561 33302 07051 44203 61605 20982 72172 58940
46387 03321 08796 43165 93739 39086 29732 90216 96309 11238 35601 05733
14965 69675 32681 42894 42668 74963 48827 45115 96565 68732 05007 16632
81194 14873 04197 85576 84292 55159

TRT #1 (new med): 09, 18, 07, 13, 02, 05, 14, 03

TRT #2 (current med): 17, 21, 08, 16, 12, 10, 15, 19

TRT #3 (placebo): 01, 04, 06, 11, 20, 22, 23, 24

(f) lurking variables:

diet, exercise, genetics, stress/lifestyle